



Project Summary

Water Distribution Study Village of Middlefield, Geauga County, Ohio

- Water Distribution System Modeling
- Field Survey to Locate Utilities

The Village of Middlefield Public Water System services a population of approximately 2,000 people, contains around 17 miles of water mains and two water towers. Foresight Engineering Group, Inc. utilized WaterCAD water distribution modeling software to complete an analysis of the existing water distribution system.

The analysis involved producing an overall water distribution map showing all Village-owned and maintained water lines. Extensive research was conducted using past improvement plans, water studies, and input from the Village to determine the size and location of waterlines, water tanks, and rating curves for all the water pumps in the system. A field survey was also conducted to locate all fire hydrants within the village limits and other critical topographical information.

The model system demand was based on information supplied by the Village. Meter readings for all consumers were analyzed and demands were placed at appropriate locations on the model system. The model was analyzed during the average daily demand, during the peak demand, and specific critical points within the system were evaluated.

After the distribution model system was completed and the demands were applied to the system, a calibration was performed. The calibration was based on actual fire flow test that were conducted by the Village. Calculated fire flows were compared to actual fire flows and minor adjustments were made to the model to better reflect actual conditions. Several iterations were performed to optimize the existing conditions model.

Foresight identified several “problem areas” within the Village with insufficient available fire flows. These areas were discussed in the report, and alternatives, which included the replacement of the existing water mains with larger capacity pipes, were proposed to the Village to increase the amount of flow within the water distribution system.

Village of Middlefield
Water Distribution System

